UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,944	02/25/2004	Zhitai Sun	1341.1190	9464

21171   7590   04/26/2011

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EXAMINER
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ART UNIT	PAPER NUMBER
2195	

MAIL DATE	DELIVERY MODE
04/26/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/784,944	SUN ET AL.
	Examiner	Art Unit
	CAROLINE ARCOS	2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>07 May 2010</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-4,6 and 8-14</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-4,6 and 8-14</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>25 February 2004</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some * c) ☐ None of:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to Amendment filed 05/07/2010.

2. Claims 1-4, 6, and 8-14 are pending for examination. Claims 1, 9, 10, 12, 13 and 14 are
   independent claims. Claims 5 and 7 are cancelled.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in
   37 CFR 1.17(e), was filed in this application after final rejection. Since this application is
   eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR
   1.17(e) has been timely paid, the finality of the previous Office action has been
   withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/07/2010 has
   been entered.

Claim Objections

4. Claims 9-10 and 13 are objected to because of the following informalities:

    a. The following terms lacks antecedent basis:

        i. The primary priority, lines 16, claim 9.

        ii. The priority higher- line 11, claim 10.

        iii. The primary priority – line 11, claim 10.

        iv. The non- idle process- line 6, claim 13

        Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-4, 6, and 8-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

  a.   The claim language in the following claims is not clearly understood:

  i.   As per claim 1, lines 5-11, it is unclear what is defined as "non-idle process"

  ii.   As per claim 3, line 5, it is unclear which operating system does "the operating system" is referring to (i.e. is it the general purpose operating system or the real-times operating system). For purpose of examination, the examiner interprets the operating system as General-purpose operating system.

  iii.   As per claim 4, lines 4-5, it is unclear what is meant by the determination whether the non-idle process is executable under the control of the operating system (emphasis added). It is not clearly understood whether there is a doubt that the non-idle process is not going to be executing under the operating system or the test to check whether there is non- idle process needed to be processed under the operating system. Lines 4, 6-7, it is unclear which operating system does "the operating system" is referring to (i.e. is it the general purpose operating system or the real-times operating system).

iv.   As per claim 6, it is unclear which operating system does "the operating system" is referring to (i.e. is it the general purpose operating system or the real-times operating system). For purpose of examination, the examiner interprets the operating system as General-purpose operating system.

v.   As per claim 8, it is unclear which operating system does "the operating system" is referring to (i.e. is it the general purpose operating system or the real-times operating system). For purpose of examination, the examiner interprets the operating system as General-purpose operating system.

vi.   As per claim 9, lines 15-16, it is unclear it unclear whose priority is being changed by the changing unit. For purpose of examination, the examiner interprets that the priority of the task is changed. Line 17-18, it is unclear what is considered primary priority. Lines 19, it is unclear whether "the operating system" is referring "the General-purpose operating system". Line 20, it is unclear whether "a primary priority of the task" is the same as "the primary priority" referred to in lines 16-17 (i.e. if it is the same primary priority, it should be referred to as the primary priority).

vii.   As per claim 10, lines 10, it is unclear whether the priority of the task is changed to higher or lower priority and what is meant "changing a priority of the task to a priority". Examiner believes that there is a typographical error. The examiner interprets the limitation that changing a priority of the task by reading a higher priority. Line 14, it is unclear whether "a primary priority of the task" is

the same as "the primary priority" referred to in line 11 (i.e. if it is the same primary priority, it should be referred to as the primary priority).

viii.   As per claim 12, line 3, it is unclear what is meant by "a primary priority". For purpose of examination, the examiner interprets a primary priority as the task priority.

ix.   As per claim 13, it is unclear what the relation between "a priority of the task" and "a primary priority". Examiner interprets both as task priority. Line 7, it is unclear whether "a non-idle process" is the same as "the non-idle process" referred to in line 6 (i.e. if it is the same non idle process, it should be referred to as the non-idle process).

x.   As per claim 14, it is unclear what the relation between "a priority of the task" and "a primary priority". Examiner interprets both as task priority. Line 5, it is unclear whether "a storage unit "and "a system" is the same as "a storage unit and "a system" as refereed in line 3 (i.e. if it is the same storage unit and system, it should be referred to as" the storage unit and "the system"). Line 6, it is unclear whether "a primary priority" is the same as "a primary priority" referred to in line 3 (i.e. if it is the same primary priority, it should be referred to as the primary priority). Lines 6-7, it is unclear what is meant by "an included non-idle process". It not clearly understood where the non-idle process is included and it is unclear of the relation of the non- idle process with the rest of the claim elements.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
such that the subject matter as a whole would have been obvious at the time the invention was made to a person
having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
manner in which the invention was made.

8. Claims 1-4, 6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Saito et al. (US 2005/0149933 A1), in view of Funaki et al. (US 2004/0098722 A1).

9. As per claim 1, Saito teaches the invention substantially as claimed including a computer-

readable recording medium that stores a task control computer program including

computer executable instructions which when executed by a computer by performing:

determining whether a non-idle process is included in processes to be executed

under control of the General-purpose operating system that process is included in

processes to be executed under control of the General-purpose operating system based on

a process identifier stored in a process control block (PCB) of processes to be executed

under control of the General-purpose operating system, wherein the non-idle process is a

process waiting for execution under control of the operating system, other than an idle

process executed when the operating system proceeds to an idle state (par. [0070]; par.

[0071]; par. [0094]; par. [0095]; par. [0096]; par. [0098]; Fig. 5, 110,112,113,114).

10. Saito does not explicitly teach causing the computer to execute a General-purpose

operating system as a task by performing:

changing a priority of the task to a higher by reading the higher priority stored in a

storage unit as a system parameter and setting the priority of the task to the higher

priority when it is determined at the determining that the executable processes to be

executed under control of General-purpose operating system include the non-idle process,

The higher priority being set higher than a primary priority of the task to execute the

General purpose operating system under the control of which the non-idle process is

executed, The task being executed under control of a real-time operating system.

11. However, Funaki teaches causing the computer to execute a General-purpose operating

system as a task by performing (par. [0030]; wherein the real-time OS (first OS) manages

and schedules the non-real-time OS (second OS) is executing the GPOS as a task):

changing a priority of the task to a higher priority and setting the priority of the

task to the higher priority when it is determined at the determining that the executable

processes to be executed under control of General-purpose operating system include the

non-idle process, The higher priority being set higher than a primary priority of the task

to execute the General purpose operating system under the control of which the non-idle

process is executed(par. [0019-0021]; par. [0030]; par. [0044]; par. [0048-0049]; par.

[0086]), the task being executed under control of a real-time operating system (par.

[0030]).

12. It would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine the teaching of Saito and Funaki because Funaki teaching of

raising the priority of the task allow the general purpose operating system to be allocated

time to execute his non-idle tasks.

13. The combined teaching of Saito and Funaki does not explicitly teach that the process

identifier indicates whether a process is the non-idle process or not and changing a

priority of the task to a higher priority by reading the higher priority stored in a storage

unit as a system parameter.

14. However, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to conclude from the combined teaching of Saito and Funaki and

especially Saito teaching, of checking for executable task (non-idle process) in the

executable task queue to be executed, that task ids existence in the executable task queue

(fig. 5, 160" c, d, f"; par. [0086]- par. [0095]) indicated whether the process is non- idle

process or not as claimed. In other words, if the process ID exists in the queue, it is a non-

idle process since it is in the executable task queue. Furthermore, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to conclude

from the combined teaching and especially Funaki teaching of raising GPOS task to be

able to execute the task that one must read the current executing priority and the next

higher priority to be able to use it in raising the task priority to be able to execute GPOS

task which is changing a priority of the task to a higher priority by reading the higher

priority stored in a storage unit as a system parameter as claimed.

15. As per claim 2, Saito teaches a system call that executes the determining is a system call (Fig. 7, 184; par. [0089]; par. [0141], lines 1-6).

16. Saito does not explicitly teach that the changing is a system call. However, Funaki teaches the changing is a system call (par. [0030]; par. [0044]; wherein the real-time OS is the managing and scheduling general purpose OS by changing its priority to be able to execute, hence, the changing is a system call .

17. As per claim 3, Funaki teaches changing the priority of the task to the primary lower than the higher priority by reading the primary priority stored in the storage unit as a system parameter and setting the priority of the task to the primary priority after the operating system has been executed at the higher priority (par. [0019-0021]; par. [0030]; par. [0044-0045]; par. [0048-0049]; par. [0086]).

18. The combined teaching of Saito and Funaki doesn't not explicitly teach that the operating system has been executed at the higher priority for a predetermined period of time. However, it would have been obvious from the combined teaching of Saito and Funaki and especially Saito background of invention of allocating time slice for each virtual machine to incorporate this teaching with changing operating system priority to have a fair share of the CPU time (par. [0003]).

19. As per claim 4, Saito teaches the determining comprises:

Determining whether a non-idle process is executable under the control of the

operating system (par. [0095]; par. [0096]; par. [0098]);

determining whether a schedule request for one of the processes to be executed

under control of the operating system has been made to the operating system(Fig. 1; fig.

9; Par. [0070]); and

determining whether an interruption request has been made to the operating

system based on an interruption request flag set when an interruption to the operating

system is required (fig. 6, 174; fig. 12, elements 241,242; par. [0105], lines 14-19).

20. As per claim 6, Saito teach the determining whether the schedule request has been made

to the operating system is based on a schedule request flag stored in a process control

block of the one of the processes to be executed under control of the operating system

(par. [0070]).

21. As per claim 8, Funaki teaches the primary priority of the task is changed to the higher

priority after it is determined at the determining that the non- idle process waiting for the

execution is included in the process to be executed under control of the operating system

par. [0019-0021]; par. [0030]; par. [0044]; par. [0048-0049]; par. [0086]).

22. Saito doesn't explicitly teach that a priority change when a predetermined period of time

has elapsed. However, it would have been obvious from Saito background of invention of

allocating time slice for each virtual machine to incorporate this teaching with changing

operating system priority to have a fair share of the CPU time (par. [0003]).

23. As per claim 9, Saito teaches a task control apparatus comprising:

a storage device storing computer-readable instructions, execution of the

instructions by the task control apparatus facilitates execution of the instructions

configuring the task control apparatus to include a process control block (PCB) that

stores a process identifier; a determining unit that determines whether the process is the

non-idle process or not and the non-idle process is executable under control of the

General-purpose operating system based on the process identifier stored in the process

control block (PCB) of processes to be executed under control of the operating system,

wherein the non-idle process is a process waiting for execution as the task under control

of the General-purpose operating system, other than an idle process executed when the

General-purpose operating system proceeds to an idle state (fig. 2, 101; par. [0070]; par.

[0071]; par. [0094]; par. [0095]; par. [0096]; par. [0098]; Fig. 5, 114).

24. Saito does not explicitly teach that causing a computer to execute a General-purpose

operating system as a task, the process identifier indicates whether a process is the non-

idle process or not and a changing unit that changes a priority of the and setting the

priority of the task to the priority higher than the primary priority when it is determined

that the processes to be executed under control of the operating system include the non-

idle process , the higher priority being set higher than a primary priority of the task to

execute the General purpose operating system under control of which the non-idle

process is executed, the task being executed under control of a real-time operating

system.

25. However, Funaki teaches causing a computer to execute a General-purpose operating

system as a task (par. [0030]; wherein the real-time OS (first OS) manages and schedules

the non-real-time OS (second OS) is executing the GPOS as a task as claimed), and a

changing unit that changes a priority by reading the primary priority stored in a storage

unit as a system parameter and setting the priority of the task to the priority higher than

the primary priority when it is determined that the processes to be executed under control

of the operating system include the non-idle process , the higher priority being set higher

than a primary priority of the task to execute the General purpose operating system under

control of which the non-idle process is executed(par. [0019-0021]; par. [0030]; par.

[0044]; par. [0048-0049]; par. [0086]), the task being executed under control of a real-

time operating system (par. [0030]).

26. It would have been obvious to one of ordinary skill in the art at the time the invention

was made to combine the teaching of Saito and Funaki because Funaki teaching of

raising the priority of the task allow the general purpose operating system to be allocated

time to execute his non-idle tasks.

27. The combined teaching of Saito and Funaki does not explicitly teach the process

identifier indicates whether a process is the non-idle process or not and changing a

priority of the task by reading the primary priority stored in a storage unit as a system

parameter.

28. However, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to conclude from Saito teaching, of checking for executable task

(non-idle process) in the executable task queue to be executed, that task ids existence in

the executable task queue (fig. 5, 160" c, d, f"; par. [0086]- Par. [0095]) indicated

whether the process is non- idle process or not as claimed. In other words, if the process

ID exists in the queue, it is a non-idle process since it is in the executable task queue.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to conclude from the combined teaching and especially Funaki

teaching of raising GPOS task to be able to execute the task that one must read the task

priority and raise the task priority by changing his priority to a higher priority than its

priority to be able to execute GPOS task which changing a priority of the task by reading

the primary priority stored in a storage unit as a system parameter as claimed.

29. As per claim 10, it is the task control method of the medium claim 9. Therefore, it is

rejected under the same rational.

30. As per claim 11, Funaki teaches changing the priority of the task to the primary priority lower than the higher priority by reading the primary priority stored in the storage unit as a system parameter and setting the priority of the task to the primary priority after the operating system has been executed at the higher priority (par. [0019-0021]; par. [0030]; par. [0044-0045]; par. [0048-0049]; par. [0086]).

31. The combined teaching of Saito and Funaki doesn't explicitly teach operating system execution for a predetermined period of time. However, it would have been obvious from Saito background of invention of allocating time slice for each virtual machine to incorporate this teaching with changing operating system priority to have a fair share of the CPU time (par. [0003]).

32. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funaki et al. (US 2004/0098722 A1).

33. As per claim 12, Funaki teaches the invention as claimed including a task control method for causing a computer to execute a General- purpose operating as a task (par. [0030]; wherein the real-time OS (first OS) manages and schedules the non-real-time OS (second OS) is executing the GPOS as a task as claimed), the method comprising;

      raising a priority of the task and setting the priority of the task to the higher priority upon determining processes to be executed under control of the General- purpose operating system include a non-idle process to be executed under control of the operating

system other than an idle process executed when the General- purpose operating system

proceeds to an idle state and based on an identifier stored in a control block executed by

the operating system (fig. 1; par. [0023]; par. [0019-0021]; par. [0030]; par. [0044]; par.

[0048-0049]; par. [0086]; wherein when the thread identifier is in the ready queue, it will

be executed by the task management section), wherein the task being executed under

control of a real time operating system (par. [0033]).

34. Funaki does not explicitly teach raising a priority of the task by reading a higher priority

than a primary priority stored in a storage unit as a system parameter.

35. However, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to conclude from Funaki teaching of raising GPOS task to be able to

execute the task that one must read the task priority and raise the task priority by

changing his priority to a higher priority than its priority to be able to execute GPOS task

which raising a priority of the task by reading the primary priority stored in a storage unit

as a system parameter as claimed.

36. As per claim 13, Saito teaches a method performed by a processor causing a computer to

execute a General- purpose operating system as a task (par. [0030]; wherein the real-time

OS (first OS) manages and schedules the non-real-time OS (second OS) is executing the

GPOS as a task as claimed), comprising:

Changing a priority of the task to a priority higher than a primary priority and

setting the priority of the task to the priority higher than the primary priority to execute

the General- purpose operating system under control of which the non-idle process is

executed upon determining that processes to be executed include a non-idle process(fig.

1; par. [0023]; par. [0019-0021]; par. [0030]; par. [0044]; par. [0048-0049]; par. [0086] ,

wherein the task being executed under control of a real time operating system (par.

[0033]).

37. Funaki does not explicitly teach changing a priority of the task by reading a higher

priority than the primary priority stored in a storage unit as a system parameter.

38. However, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to conclude from Funaki teaching of raising GPOS task to be able to

execute the task that one must read the task priority and raise the task priority by

changing his priority to a higher priority than its priority to be able to execute GPOS task

which changing a priority of the task by reading the primary priority stored in a storage

unit as a system parameter as claimed.

39. As per claim 14, Funaki teaches a method performed by a processor causing a computer

to execute an operating system as a task (par. [0030]; wherein the real-time OS (first OS)

manages and schedules the non-real-time OS (second OS) is executing the GPOS as a

task as claimed), comprising:

setting a priority of the task to a priority that is higher than a primary priority to

execute the operating system and an included non-idle process (fig. 1; par. [0023]; par.

[0019-0021]; par. [0030]; par. [0044]; par. [0048-0049]; par. [0086], wherein the task

being executed under control of a real time operating system (par. [0033]).

40. Funaki does not explicitly teach setting a priority of the task by reading a priority higher

than a primary priority from a storage unit as a system parameter.

41. it would have been obvious to one of ordinary skill in the art at the time the invention was

made to conclude Funaki teaching of raising GPOS task to be able to execute the task that

one must read the current executing priority and the next higher priority to be able to use

it in raising the task priority to be able to execute GPOS task which is setting a priority of

the task to a higher priority by reading the higher priority stored in a storage unit as a

system parameter.

Response to Arguments

42. Applicant's arguments filed on 05/07/2010 with respect to claims 1-4, 6, and 8-14 have

been considered but are moot in view of the new ground(s) of rejection.

Conclusion

43. The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

44. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAROLINE ARCOS whose telephone number is (571)270-3151. The examiner can normally be reached on Monday-Thursday 8:00 AM to 2:00 PM.

45. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

46. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Caroline Arcos/
Examiner, Art Unit 2195

/Meng-Ai An/

Supervisory Patent Examiner, Art Unit 2195